

REMARKS

1. Foreign references #2, 3, and 7 in IDS of 09/23/2002:

5 These references are unrelated and were sent in error. The correct reference documents, Japanese patent documents having JP publication numbers 64-041522, 07-046125, and 08-288843 concerning phase locked loops, are provided in an IDS accompanying this response. The applicant requests that the examiner consider these three documents.

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2. Rejection of claim 12 under 35 U.S.C. 112, second paragraph:

15 Claim 12 is amended to clarify the connection of the frequency detector to the voltage-controlled oscillator and the charge pump, and to clarify that the frequency detector receives the input signal and the feedback signal and outputs a frequency difference signal to the charge pump. That is, according to the amended claim 12, the charge pump only further receives the frequency difference signal. No new matter is entered by this amendment.

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Reconsideration of the amended claim 12 is politely requested.

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3. Rejection of claims 1-6, 10, and 17-20 under 35 U.S.C. 102(b) as being anticipated by Nogawa (US 6,154,071); rejection of claims 11 and 12 under 35 U.S.C. 102(b) as being anticipated by Hogeboom (US 5,818,304); and rejection of claims 11 and 13-15 under 35 U.S.C. 102(e) as being anticipated by Aoki (US 6,525,612):

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Claim 1 is amended to incorporate the limitation of claim 7 of "the pulse reshaper increases or decreases a width of a pulse". Accordingly, claim 7 is cancelled. The intermediate claim 5 is amended to avoid redundancy with the amended claim 1, however, the limitation that the "phase error signal comprises up pulses and down pulses" of claim 5 is not incorporated into the amended claim 1. Claims 3 and 9 are amended to have terminology consistent with the amended claim 1. No new matter is

entered.

No cited art teaches or suggests:

5 "a pulse reshaper connected to the phase detector for reshaping the phase error signal by increasing or decreasing a width of a pulse of the phase error signal"

10 as recited in the amended claim 1. The "up pulses and down pulses" limitation of claim 5 is unnecessary to distinguish claim 1 from the prior art.

15 Claim 21 including all limitations of original claims 1 and 8 is added. Dependent claims 22-29 corresponding to original claims 2-7, 9, and 10 are also added. No new matter is entered.

20 The limitations of claim 21 have been found allowable by the examiner. Specifically, no cited art teaches or suggests:

25 "a charge pump connected to the signal reshaper for receiving the reshaped or unreshaped phase error signal from the signal reshaper and for outputting a charge pump signal, the charge pump increasing or decreasing an amplitude of a current of the charge pump signal according to the reshaped phase error signal"

30 Claim 30 including all limitations of original claims 1 and 9 is added. Dependent claims 31-38 corresponding to original claims 2-8 and 10 are also added. No new matter is entered.

35 The limitations of claim 30 have been found allowable by the examiner. Specifically, no cited art teaches or suggests:

40 "a controller connected to the signal reshaper and the charge pump

for controlling the signal reshaper and the charge pump"

Claim 11 is amended to incorporate the limitations of claim 16, which is cancelled. No new matter is entered.

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Claims 17-20 are cancelled.

10 Reconsideration of amended claims 1, 3, 5, 9, and 11 is politely requested. Claims 2-6, 8-10, and 12-15 are dependent on claims 1 and 11 and should be allowed if claims 1 and 11 are allowed. Consideration of newly added claims 21-38 is also requested.

Sincerely,

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